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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,618

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Yang Hwan No

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EXAMINER

SHANNON, MICHAEL T

ART UNIT

PAPER NUMBER

2612

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/593,618	<b>Applicant(s)</b> NO ET AL.	
	<b>Examiner</b> MICHAEL SHANNON	<b>Art Unit</b> 2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/21/06; 3/15/10</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Status of the Claims***

1. This is in response to the communication filed on September 21, 2006. Claims 1-22 are currently pending in this application.

### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: ELECTRIC HOME APPLIANCE ABLE TO COMMUNICATE OVER POWER LINE

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3, 9, and 18-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. Claim 3 recites the limitation "the signal lines" in line 2, and recites the limitation "the power line" in lines 2-3. There is insufficient antecedent basis for these limitations in the claim.

b. Claim 9 recites the limitation "the signal lines" in line 2, and recites the limitation "the power line" in line 3. There is insufficient antecedent basis for these limitations in the claim.

c. Claim 18 recites the limitation "the noise" in line 1. There is insufficient antecedent basis for this limitation in the claim.

d. Claim 19 recites the limitation "the signal lines" in line 9, and recites the limitation "the power line" in line 10. There is insufficient antecedent basis for these limitations in the claim.

e. Claim 20 recites the limitation "the signal lines" in line 9, and recites the limitation "the power line" in line 10. There is insufficient antecedent basis for these limitations in the claim.

f. Claim 21 recites the limitation "the signal lines" in line 9, and recites the limitation "the power line" in line 10. There is insufficient antecedent basis for these limitations in the claim.

g. Claim 22 recites the limitation "the signal lines" in line 9, recites the limitation "the power line" in line 10, and recites the limitation "the line connector" in line 15. There is insufficient antecedent basis for these limitations in the claim.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Han et al. (US 2004/0111496 A1).

a. Re: Claim 1, Han discloses:

“A home appliance which enables power cable communication therewith” (Para. [0010]);

“a body forming an exterior of the home appliance;” (Fig. 2);

“a main control unit at the body, for making various kinds of control of the home appliance;” (Para. [0028], microcomputer **23**);

“and a power cable communication modem at the body, for transmission/reception of various kinds of data to/from a remote monitor which monitors the home appliance remotely.” (Para. [0023] – [0024], where network master **A1** is physically remote from other home appliances (Fig. 2)).

b. Re: Claim 2, Han discloses the subject matter of claim 1, as described above. Han further discloses: “wherein the power cable communication modem is connected to signal lines of the main control unit and a power line of the home appliance for transmission/reception of data to/from the remote monitor.” (Para. [0024], [0026], [0028], Fig. 3).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 3 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Han et al. as applied to claim 1 above, and further in view of Wood (U.S. Patent .6,007,372).

a. Re: Claim 3, Han discloses the subject matter of claim 1, as described above. While Han discloses connections between the modem and appliance, and modem and power line, Han does not specifically disclose "a line connector having the signal lines of the main control unit and the power line of the home appliance connected thereto together; and a line connection connector at the power cable communication modem for making the power cable communication modem to be connected to the signal lines of the main control unit and the power line of the home appliance at a time as the line connection connector is detachably connected to the line connector."

Wood discloses a power/data cable system for a peripheral of an electronic device in which it is known to join separate power and data lines in a "Y" configuration at a connector **13** prior to attaching to a connector fitting **4** of the peripheral device (Col. 3, lines 15-20 and lines 54-62, and Fig. 1B; where **13** corresponds to "line connector", **4** corresponds to "line connection connector", and Fig. 1B shows detachment). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to incorporate the teachings of Wood in the teachings of Han in order to allow a connection of the modem to the home appliance with minimal effort using familiar equipment (COM port cabling and connections) (Wood, Col. 2, lines 12-17).

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b. Re: Claim 19, Han and Wood render obvious the subject matter of this claim as described in the rejection of claims 1 and 3 above, because it contains the same limitations as claim 3 and its base claim 1.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Han et al. and Wood as applied to claim 3 above, and further in view of Chang (U.S. Patent 5,860,826).

Re: Claim 4, Han and Wood render obvious the subject matter of claim 3, as described above, including "wherein the line connector and the line connection connector are detachably connected to each other", as described in the rejection of claim 3. Han does not specifically disclose that the connection is "in shapes of a female terminal and a male terminal of a hook type." Chang discloses fasteners for securing matching electrical connectors (Col. 1, lines 4-6), which includes a male connector and female connector retained together using hook holes (Col. 3, lines 4-11).

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to incorporate the teachings of Chang in the teachings of Han and Wood in order to ensure the connectors are firmly retained together (Chang, Col. 3, lines 4-11).

10. Claims 5-8 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Han et al. and Wood as applied to claim 3 above, and further in view of Noorily (U.S. Patent 4,731,032).

a. Re: Claim 5, Han and Wood render obvious the subject matter of claim 3, as described above. Han does not specifically disclose "a connector cover for

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detachable connection to the line connector when the power cable communication modem is not mounted to the line connector for preventing foreign matters from infiltrating into the line connector.” Noorily discloses a protective cover for an electrical connector that is detachable (Col. 1, lines 5-9), that prevents foreign substances from entering when the connector is disconnected (Col. 4, lines 50-61).

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to incorporate the teachings of Noorily in the teachings of Han and Wood in order to protect the exposed contacts of the connector when it is unmated (Noorily, Col. 1, lines 19-27).

b. Re: Claim 6, Han, Wood and Noorily render obvious the subject matter of claim 5, as described above. Noorily further discloses "wherein the connector cover includes; a plug portion for being placed in the line connector, and a cover portion at rear of the plug portion for enclosing a circumference of the line connector." (Col. 4, lines 25-61). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to incorporate the teachings of Noorily in the teachings of Han and Wood in order to prevent foreign matters from entering the mating end of the connector (Noorily, Col. 4, lines 56-61).

c. Re: Claim 7, Han, Wood and Noorily render obvious the subject matter of claim 6, as described above. Noorily further discloses "wherein the plug portion includes; a hook for detachable engagement with a hook slot inside of the line connector, and an end the hook extended through a pass through hole in the cover portion so as to be exposed to an outside of the cover portion, for enabling handling."



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(Col. 3, lines 25-31, Col. 4, lines 47-50 and Fig. 7, latch portion **34a** and shoulder **50a**.

Col. 3, lines 35-41 and Fig. 5 discloses flanges **24c** and **24d** which are integrally connected to **34a**).

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to incorporate the teachings of Noorily in the teachings of Han and Wood in order to provide a secure connection between the protective cover and the connector, while still facilitating the installation and removal of the cover (Noorily, Col. 4, lines 35-41).

d. Re: Claim 8, Han, Wood and Noorily render obvious the subject matter of claim 5, as described above. Noorily further discloses “wherein the connector cover is formed of plastic or synthetic resin.” (Col. 2, lines 51-55).

e. Re: Claim 20, Han, Wood and Noorily render obvious the subject matter of this claim as described in the rejection of claims 1, 3, and 5 above, because it contains the same limitations as claim 5 and its base claims.

11. Claims 9 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Han et al. as applied to claim 1 above, and further in view of Brooks et al. (U.S. Patent 5,185,881).

a. Re: Claim 9, Han discloses the subject matter of claim 1, as described above. Han further discloses:

“a signal connector connected to the signal lines at the main control unit” (Para. [0028], modem connector **21**);

“a signal connection connector at the power cable communication modem for connection to the signal connector;” (Para. [0026], appliance connector **12** and Fig. 3);

“a power source connection connector at the power cable communication modem for connection” a power source (Para. [0026], power line connector **11**);

Han does not specifically disclose “a power connector connected to the power line to the home appliance”. Brooks discloses a power supply module of an electronic device (Col. 3, lines 1-11) with a power supply connector **112** for interconnecting the power supply with another module of the device (Col. 4, lines 43-46). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to incorporate the teachings of Brooks in the teachings of Han, in order to facilitate repair of modules, such as a modem, within an electronic device, such as a home appliance (Brooks, Col. 1, lines 27-30 and lines 35-40), by allowing them to be detachably connected to a power supply.

b. Re: Claim 21, Han and Brooks render obvious the subject matter of this claim as described in the rejection of claims 1 and 9 above, because it contains the same limitations as claim 9 and its base claim 1.

12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Han and Brooks as applied to claim 9 above, and further in view of Chang.

Re: Claim 10, Han and Brooks render obvious the subject matter of claim 9, as described above, including the “signal connector”, signal connection connector”, “power connector”, and “power source connector”, but do not specifically disclose “wherein the signal connector and the signal connection connector, and the power connector and the

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power source connection connector are detachably connected to each other respectively in shapes of female terminals and male terminals of a hook type.”

However, Chang discloses fasteners for securing matching electrical connectors (Col. 1, lines 4-6), which includes a male connector and female connector retained together using hook holes (Col. 3, lines 4-11).

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to incorporate the teachings of Chang in the teachings of Han and Brooks in order to ensure the connectors are firmly retained together (Chang, Col. 3, lines 4-11).

13. Claims 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Han as applied to claim 1 above, and further in view of Denninghoff et al. (US 2004/0221194).

a. Re: Claims 11-13, Han discloses the subject matter of claim 1, as described above. Han does not specifically disclose “wherein the power cable communication modem is a built-in type modem provided to an inside of the body”, “is fixedly secured to an inside surface of the body with fastening members”, or “is fixedly secured to a fixing bracket on an inside surface of the body.” However, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to physically connect a power line communication modem to an associated device, either internally or externally as further evidenced by Denninghoff ([0027]), because the modem is intended to provide a communication interface for the device and would therefore need to be in proximity to the device. Furthermore, it would have been

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obvious to one of ordinary skill in the art at the time of the claimed invention to use well known fastening members or a fixing bracket to secure the modem to the device, in order to prevent damage to the modem during any movement of the device.

b. Re: Claims 14-16, Han discloses the subject matter of claim 1, as described above. Han does not specifically disclose “wherein the power cable communication modem is of an exterior mounting type to be exposed to an outside of the body”, “is fixedly secured to an outside surface of the body with fastening members”, or “the body includes a positioning boss, and the other one of the power cable communication modem and the body includes a positioning hole opposite to the positioning boss for placing the positioning boss therein.” However, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to physically connect a power line communication modem to an associated device, either internally or externally as further evidenced by Denninghoff ([0027]), because the modem is intended to provide a communication interface for the device and would therefore need to be in proximity to the device. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use well known fastening members or positioning bosses and holes to secure the modem to the device, in order to facilitate access to the modem for any needed repairs.

14. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Han as applied to claim 1 above, and further in view of Tustison et al. (U.S. Patent 6,995,658 B2).

a. Re: Claim 17, Han discloses the subject matter of claim 1, as described above. Han does not specifically disclose "a noise filter in the body for preventing noise of a power source from transmitting to the main control unit and the power cable communication modem." Tustison discloses communication over a power line (Col. 1, lines 6-10) comprising such a noise filter (Col. 6, line 31 - Col. 7, line 3, filter **311**). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to incorporate the teachings of Tustison in the teachings of Han in order to reduce voltage fluctuation to a nominal level (Tustison Col. 6, lines 40-43), thus facilitating receipt of data over the power line.

b. Re: Claim 18, Han discloses the subject matter of claim 1, as described above. Han does not specifically disclose "wherein the noise filter has an input terminal connected to an external power line to the home appliance, and an output terminal connected to the main control unit and the power cable communication modem." Tustison discloses communication over a power line (Col. 1, lines 6-10) comprising such a noise filter (Col. 6, line 31 - Col. 7, line 3, filter **311**, where Fig. 3 shows the connection and **304** is host electronics as identified in Tustison). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to incorporate the teachings of Tustison in the teachings of Han in order to reduce voltage fluctuation to a nominal level (Tustison Col. 6, lines 40-43), thus facilitating receipt of data over the power line.

15. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Han et al., in view of Brooks and Noorily.

Re: Claim 22, Han discloses:

“A home appliance which enables power cable communication therewith” (Para. [0010]);

“a body forming an exterior of the home appliance;” (Fig. 2);

“a main control unit at the body, for making various kinds of control of the home appliance;” (Para. [0028], microcomputer **23**);

“a power cable communication modem at the body, for transmission/reception of various kinds of data to/from a remote monitor which monitors the home appliance remotely.” (Para. [0023] – [0024], where network master **A1** is physically remote from other home appliances (Fig. 2));

“a signal connector connected to the signal lines at the main control unit” (Para. [0028], modem connector **21**);

“a signal connection connector at the power cable communication modem for connection to the signal connector;” (Para. [0026], appliance connector **12** and Fig. 3);

“a power source connection connector at the power cable communication modem for connection” a power source (Para. [0026], power line connector **11**);

Han does not specifically disclose “a power connector connected to the power line to the home appliance”. Brooks discloses a power supply module of an electronic device (Col. 3, lines 1-11) with a power supply connector **112** for interconnecting the power supply with another module of the device (Col. 4, lines 43-46). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to incorporate the teachings of Brooks in the teachings of Han, in order to facilitate repair

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of modules, such as a modem, within an electronic device, such as a home appliance (Brooks, Col. 1, lines 27-30 and lines 35-40), by allowing them to be detachably connected to a power supply.

Han does not specifically disclose “a connector cover for detachable connection to the line connector when the power cable communication modem is not mounted to the line connector for preventing foreign matters from infiltrating into the line connector.” Noorily discloses a protective cover for an electrical connector that is detachable (Col. 1, lines 5-9), that prevents foreign substances from entering when the connector is disconnected (Col. 4, lines 50-61). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to incorporate the teachings of Noorily in the teachings of Han and Brooks in order to protect the exposed contacts of the connector when it is unmated (Noorily, Col. 1, lines 19-27).

### ***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Hsiao et al. (US 2005/0064756 A1)
- b. Banas et al. (US 2004/0171288 A1)
- c. Abukawa et al. (U.S. Patent 5,350,309)

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL SHANNON whose telephone number is

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(571)270-7457. The examiner can normally be reached on Monday through Friday, 8:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin C. Lee can be reached on 571-272-2963. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. S./  
Examiner, Art Unit 2612

/BENJAMIN C. LEE/  
Supervisory Patent Examiner, Art Unit 2612